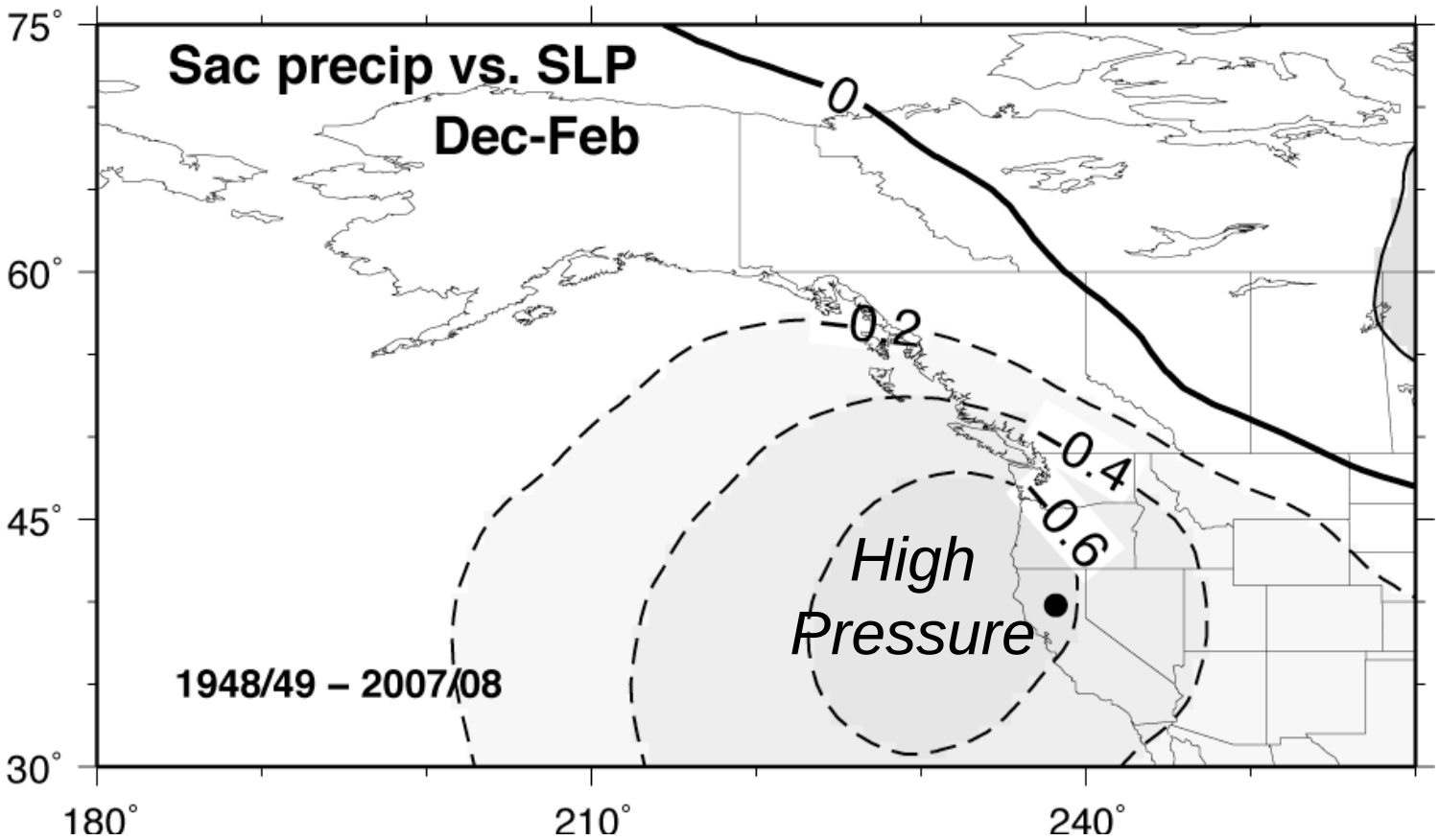
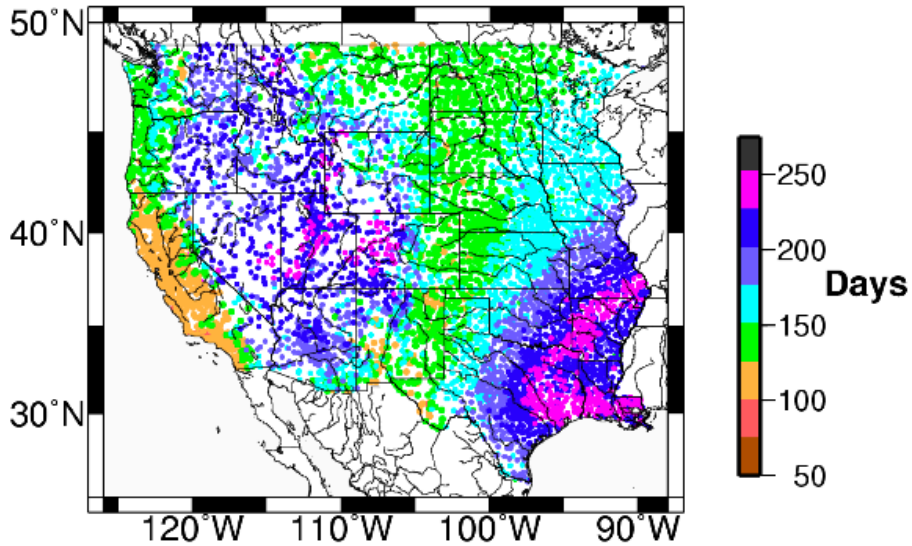
Historically, if high pressure conditions set up offshore, California will be dry. ENSO, PDO & other large-scale conditions can presage seasonal tendencies towards this….



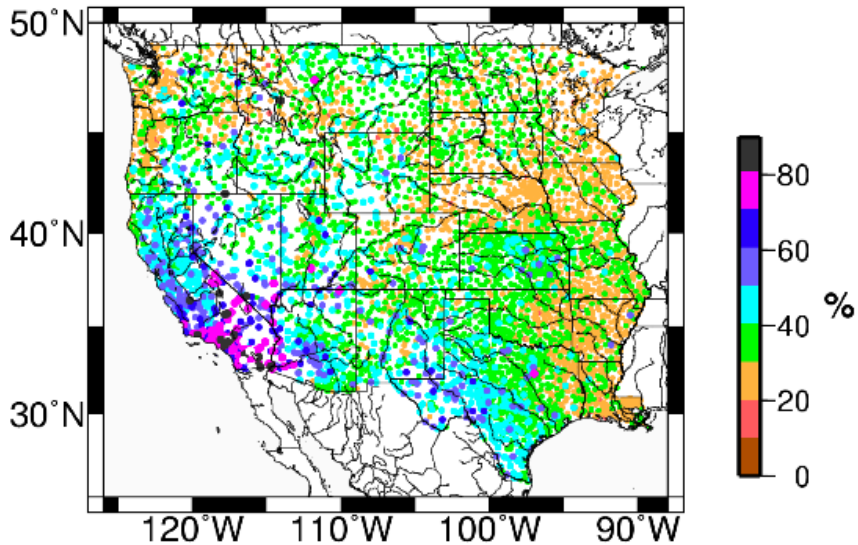
But what are the chances that a few big storms might still slip thru to bail us out in 2009?

a. L67: Time (days) to accumulate 67% of annual total precip

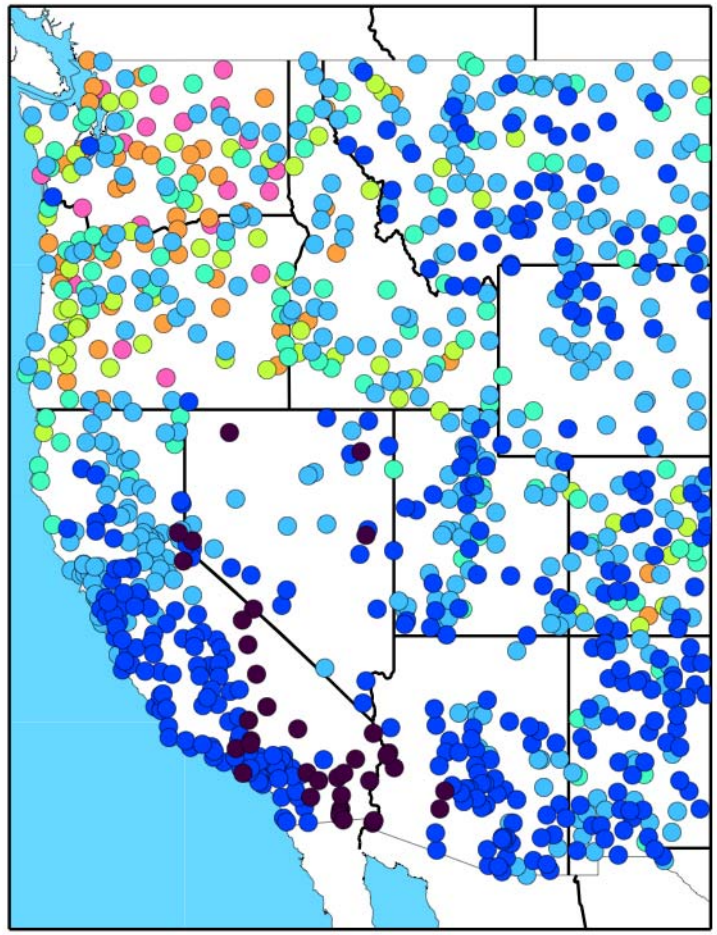
Mean of length of record, daily CO-OP and 1st order stations



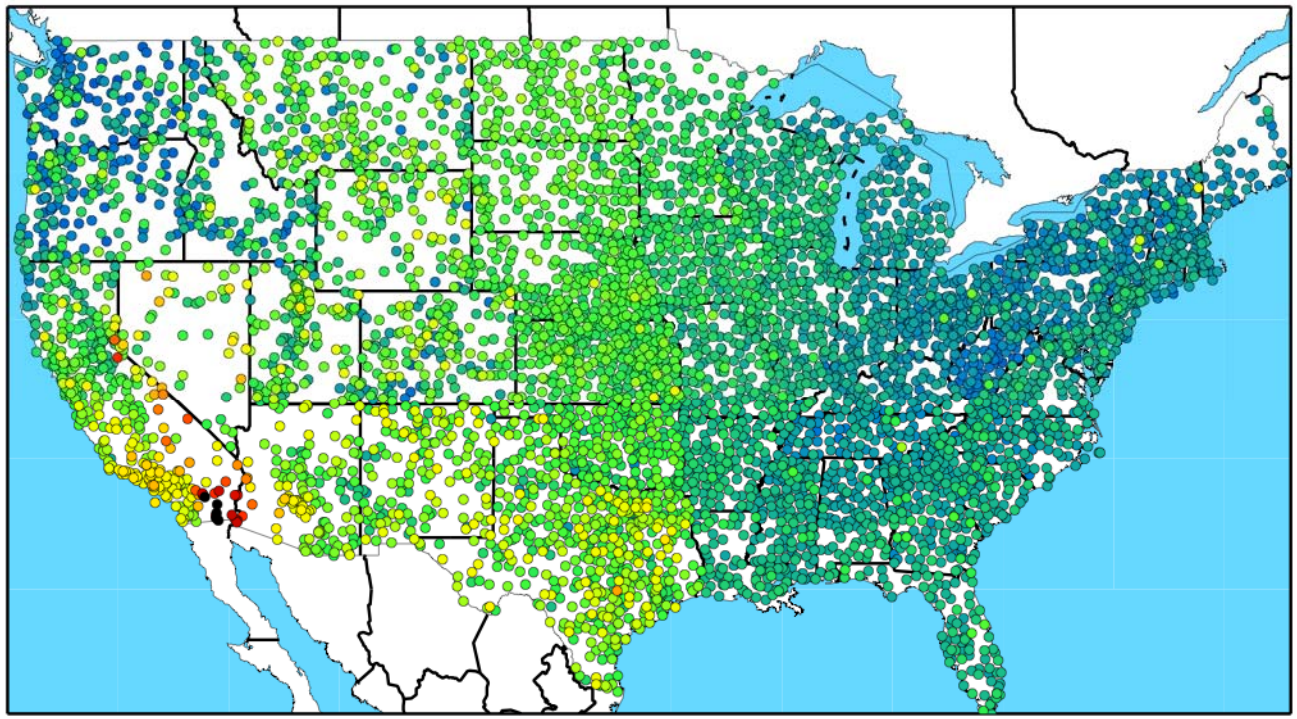
b. Coefficient of Variation (σ/μ) of L67



AVERAGE NUMBER OF DAYS/YR TO OBTAIN HALF OF TOTAL PRECIPITATION, WY 1951-2006

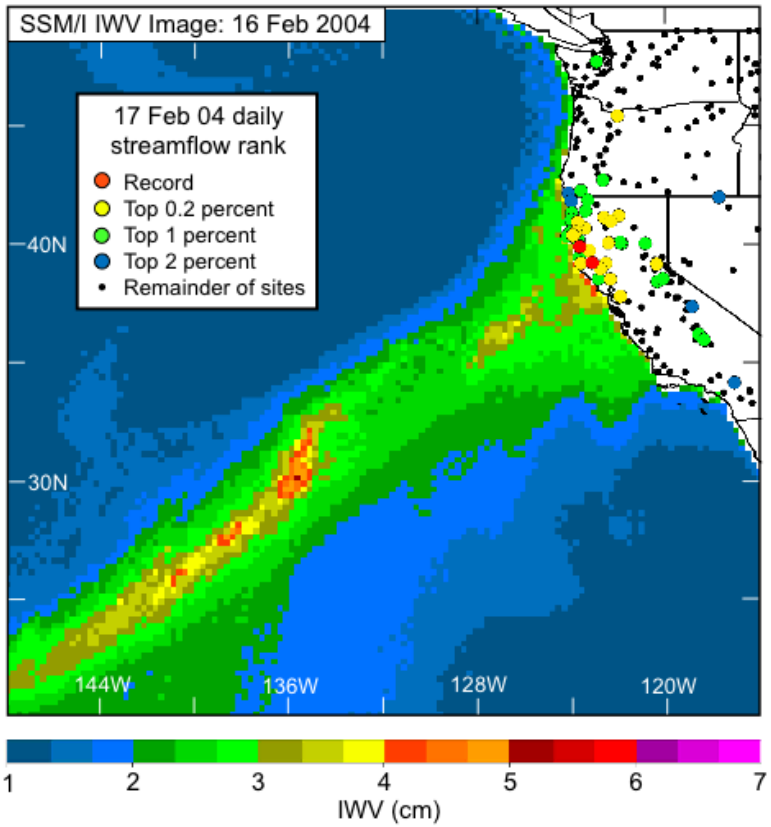


AVERAGE MAXIMUM DAILY PRECIPITATION AS FRACTION OF ANNUAL TOTAL



THE big storms in California's arsenal…

Atmospheric Rivers!

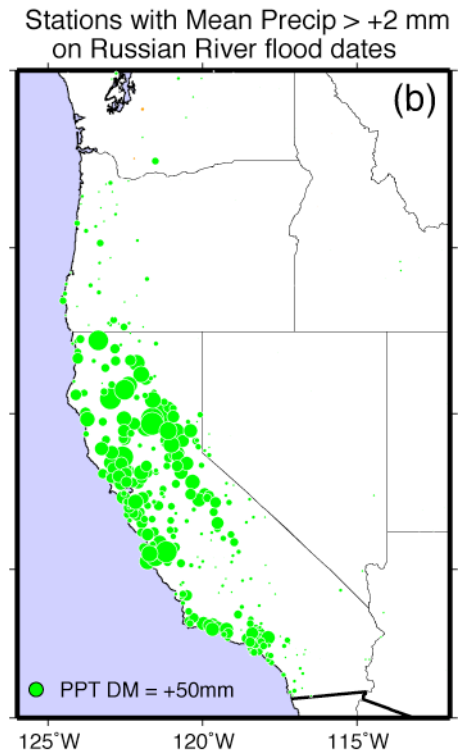


Ralph et al, GRL, 2006;
Neiman et al, in press;
Dettinger 2004

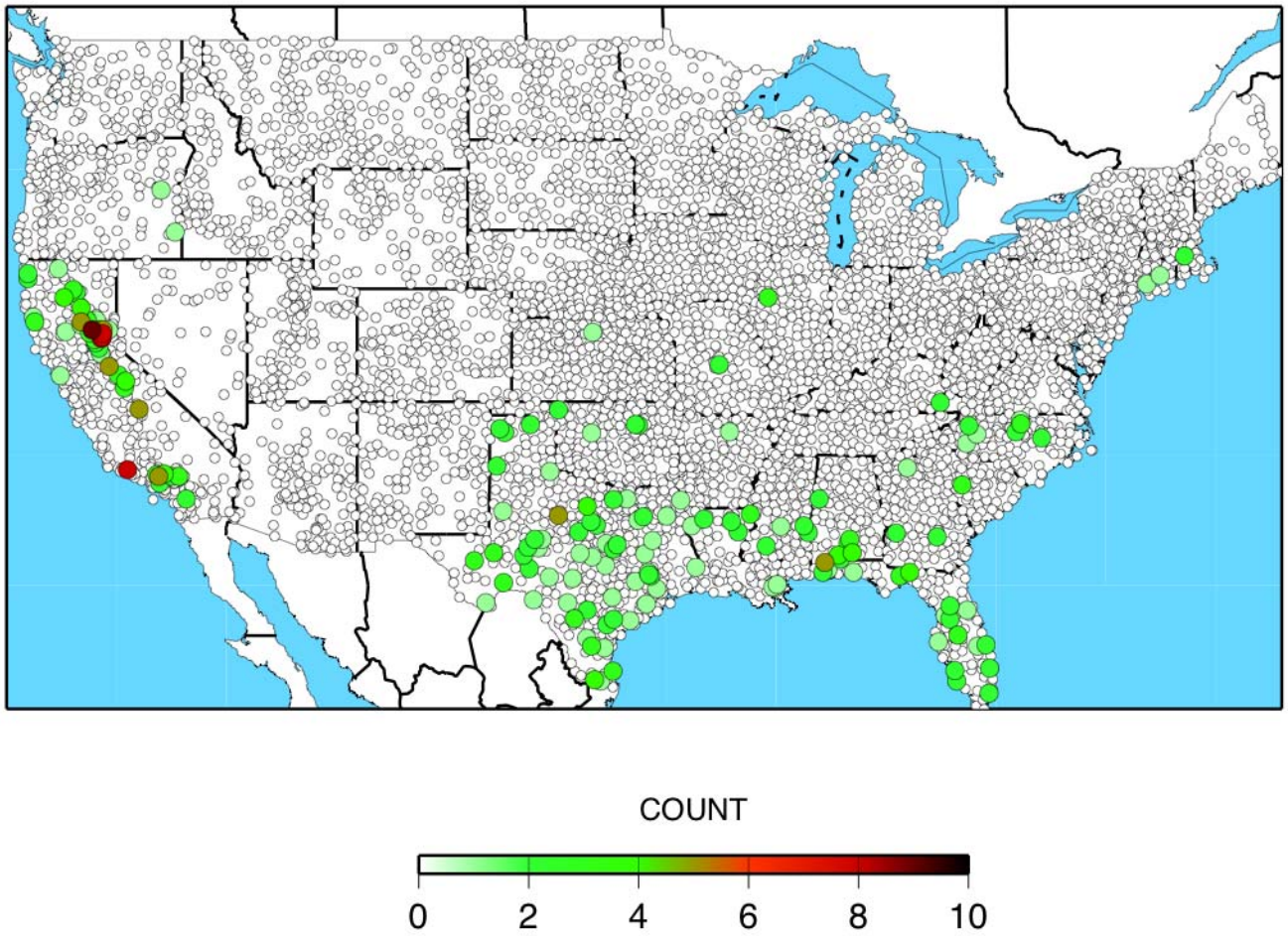
- All 7 major floods of Russian River since 1997 have been caused by atmospheric rivers

- The 9 largest winter floods of Carson River since 1950 have been atmospheric rivers (I.e., pineapple expresses)

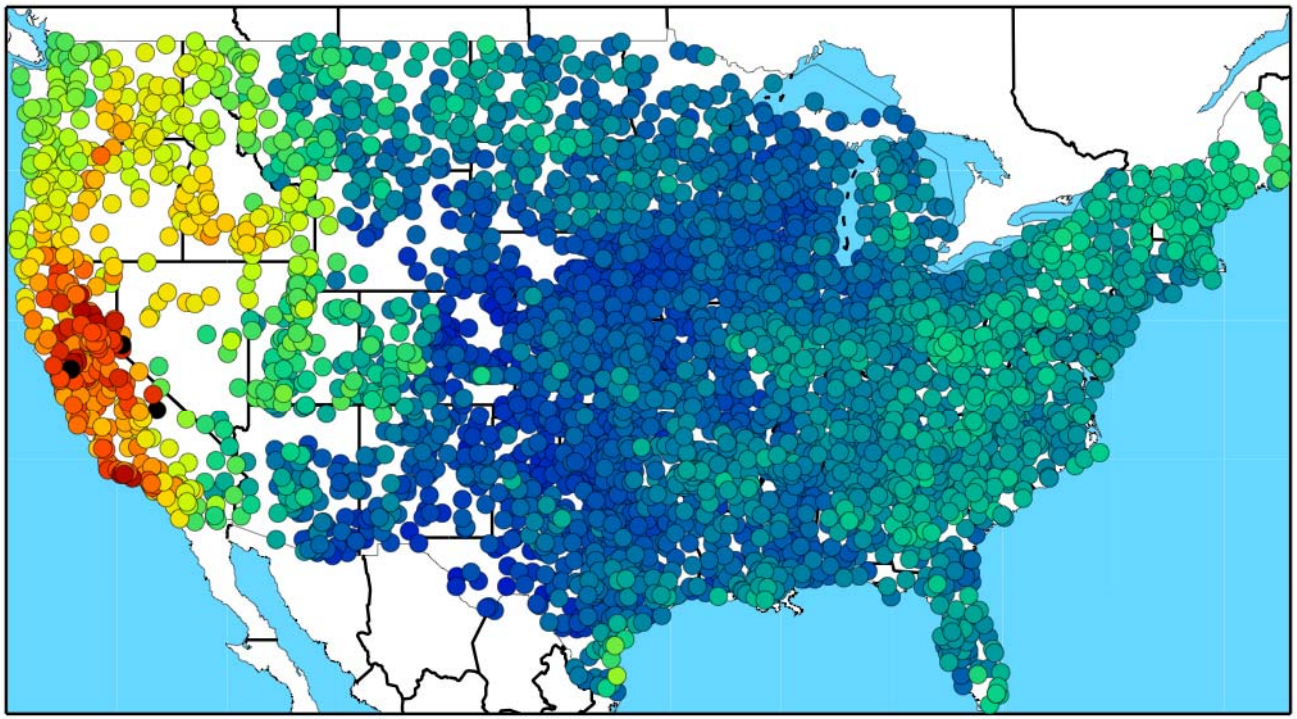
Corresponding precip patterns tend to be restricted mostly to Pacific coast states



Number of times historically when more than 40 cm (16 inches) of precipitation have fallen in a 3-day period

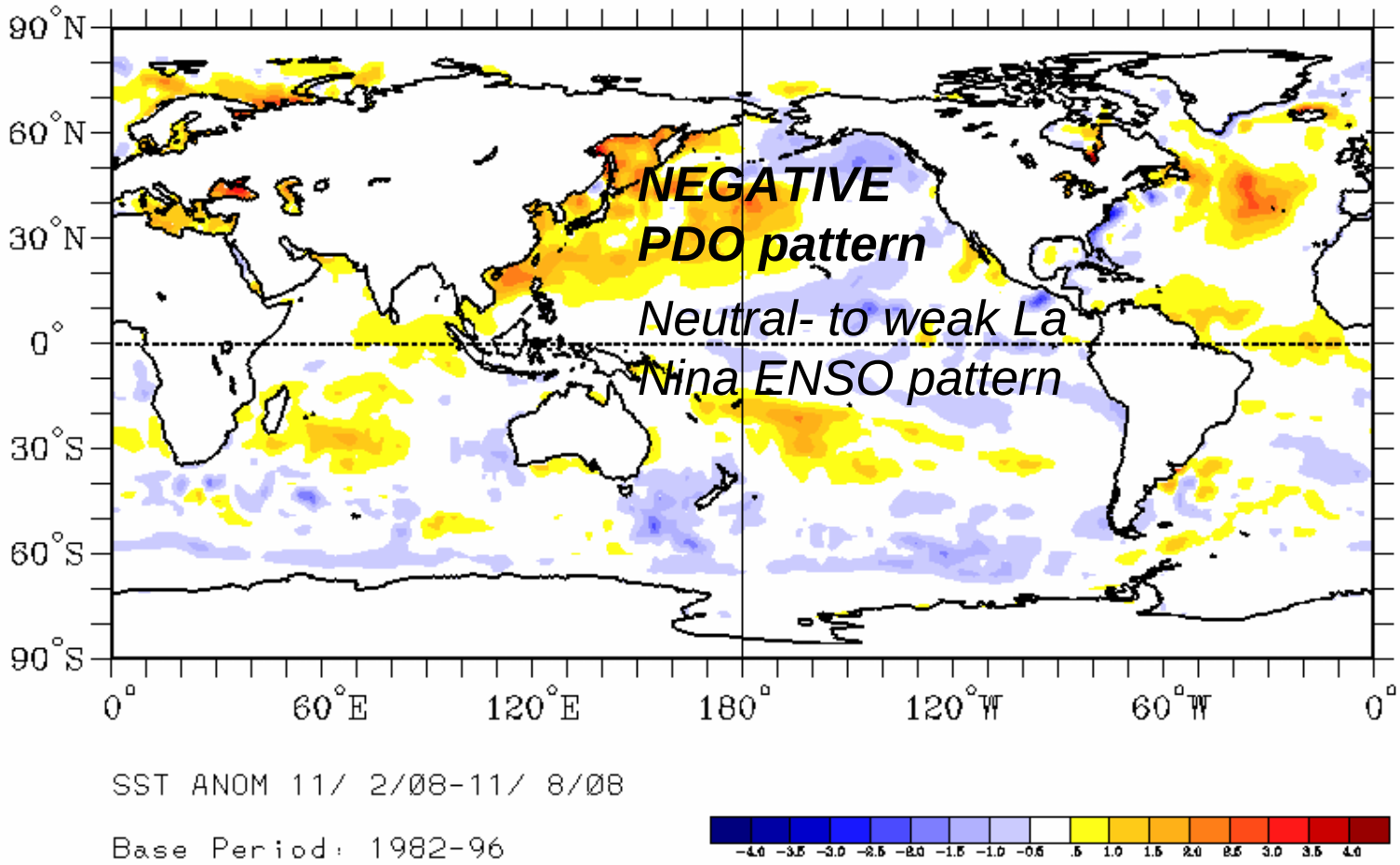


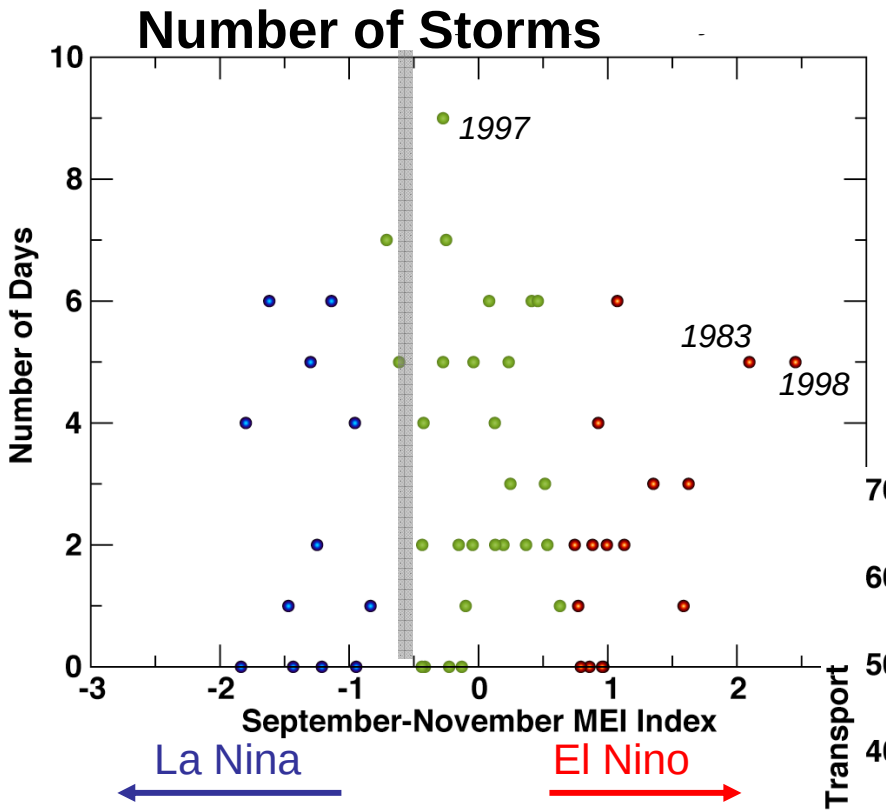
CONTRIBUTIONS OF AR-DAYS (0 AND +1) TO
TOTAL PRECIPITATION, WY 1998-2006



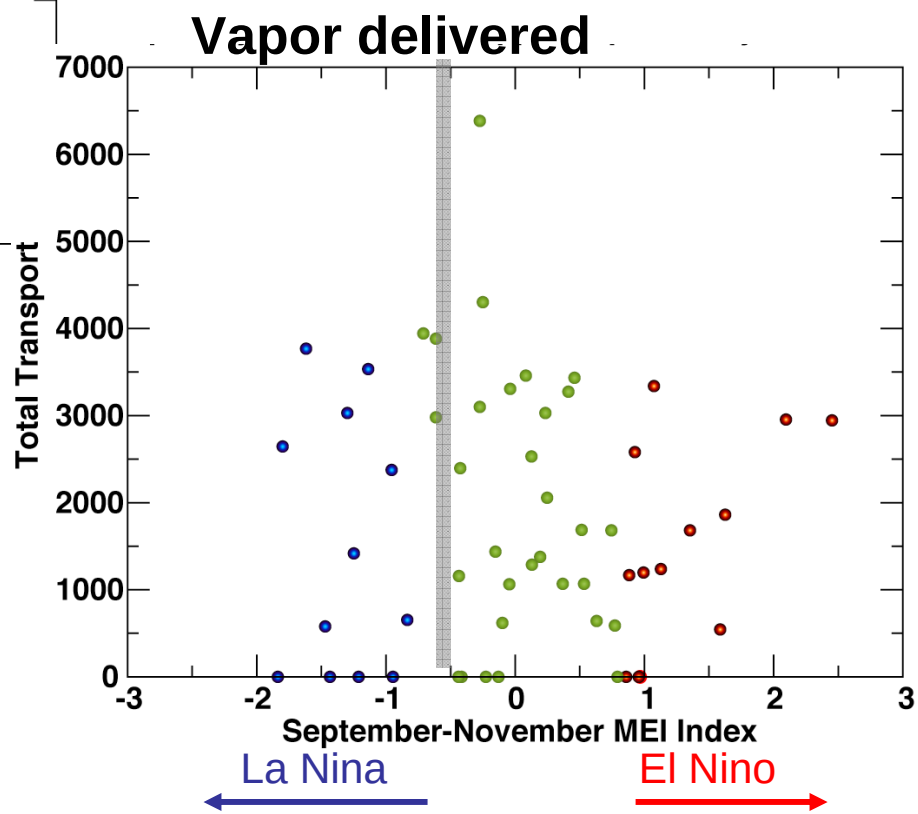
South Coast Landfalls

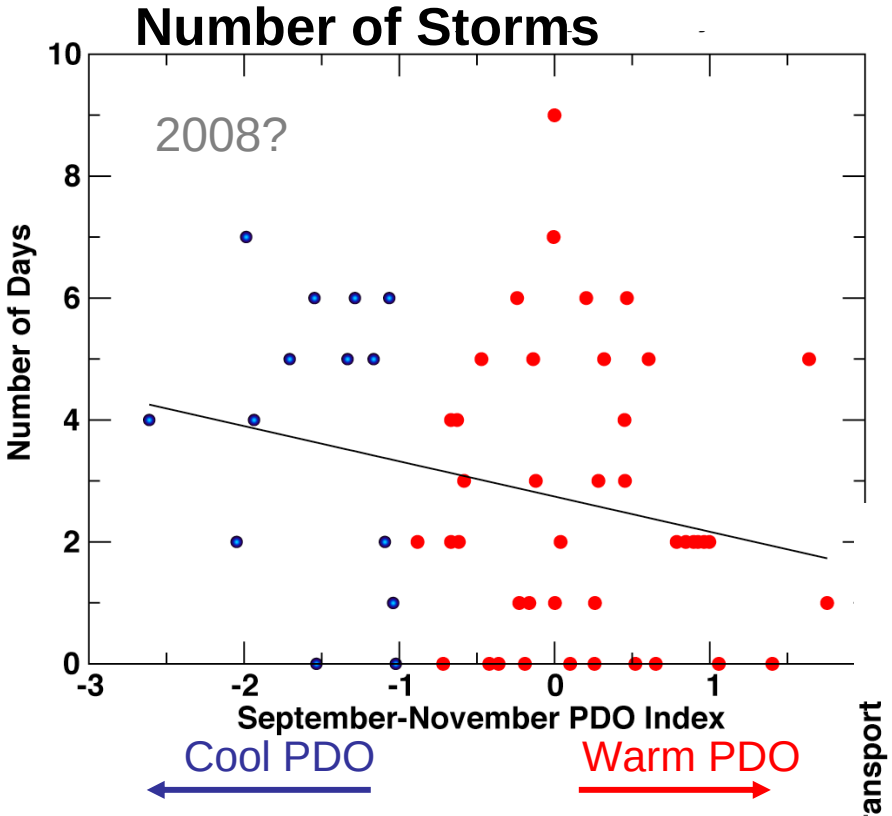
Can we predict whether such a "bailout" is likely this winter?



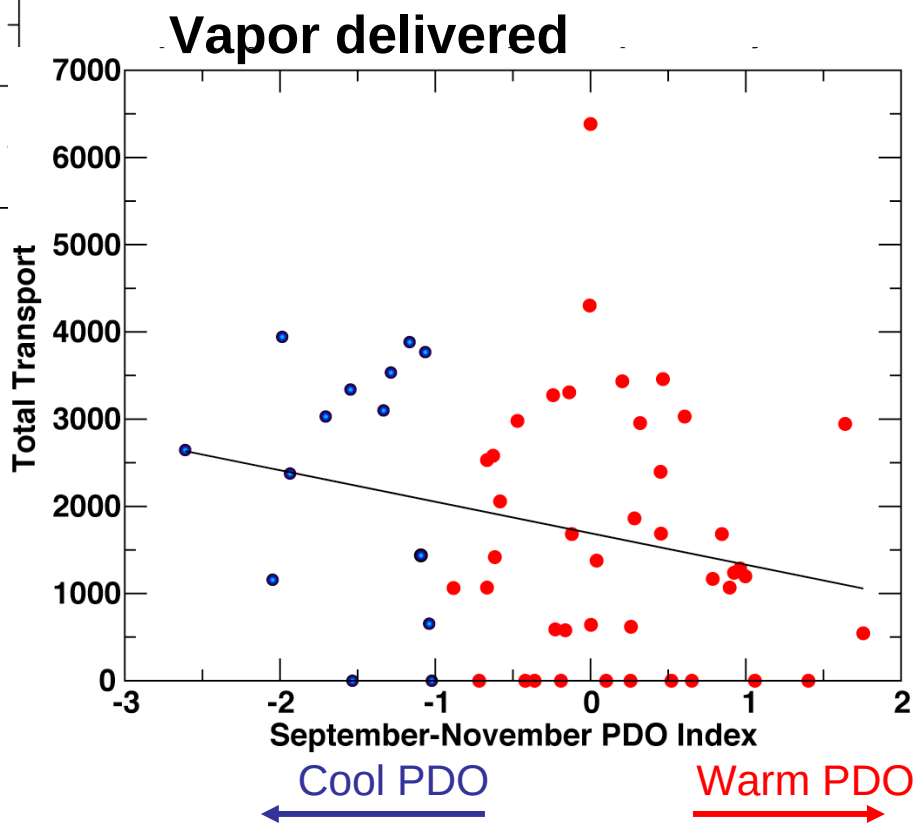


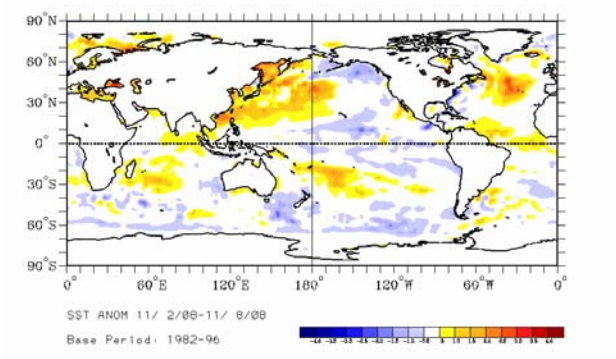
How has the occurrence of such storms depended on MEI status in the past?

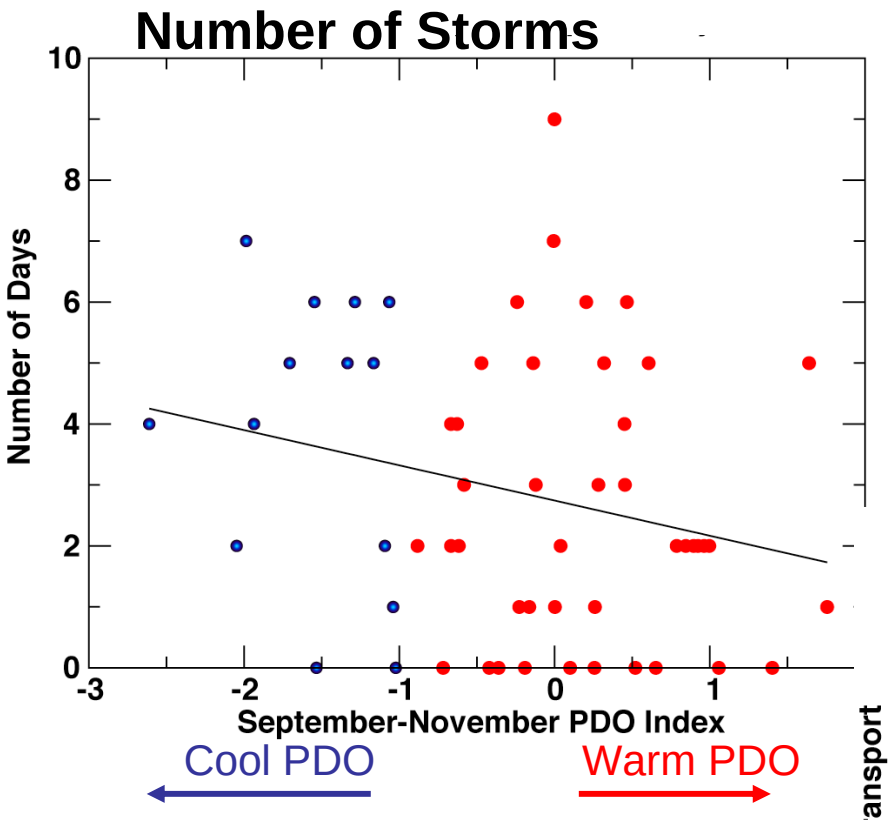




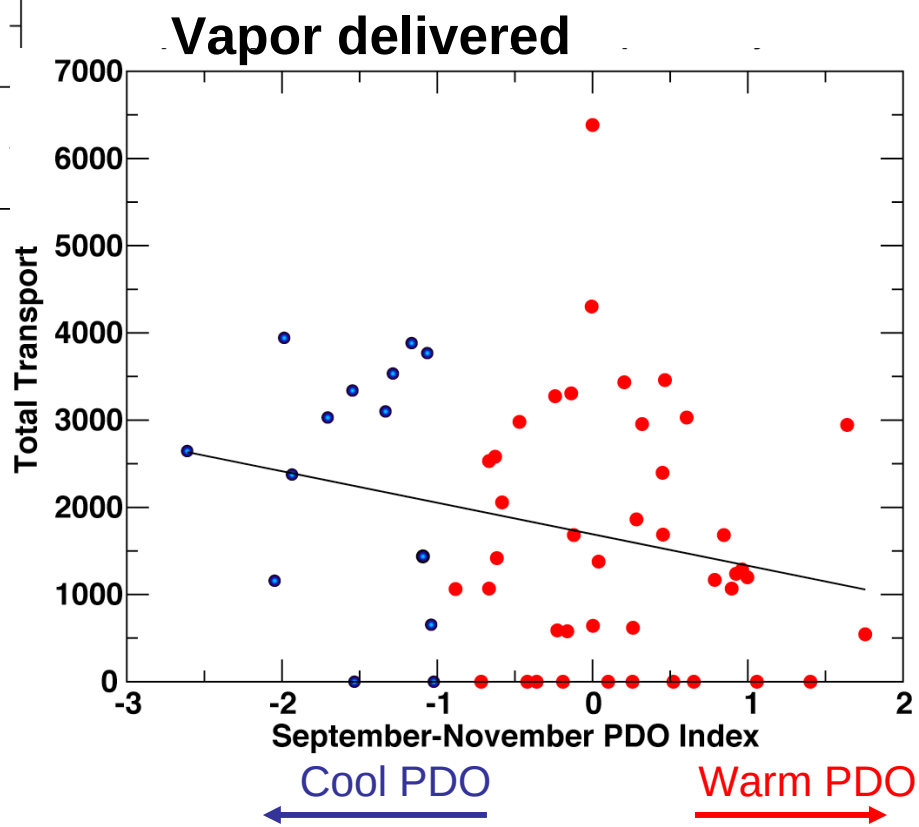
How has the occurrence of such storms depended on Pacific Decadal Oscillation status?





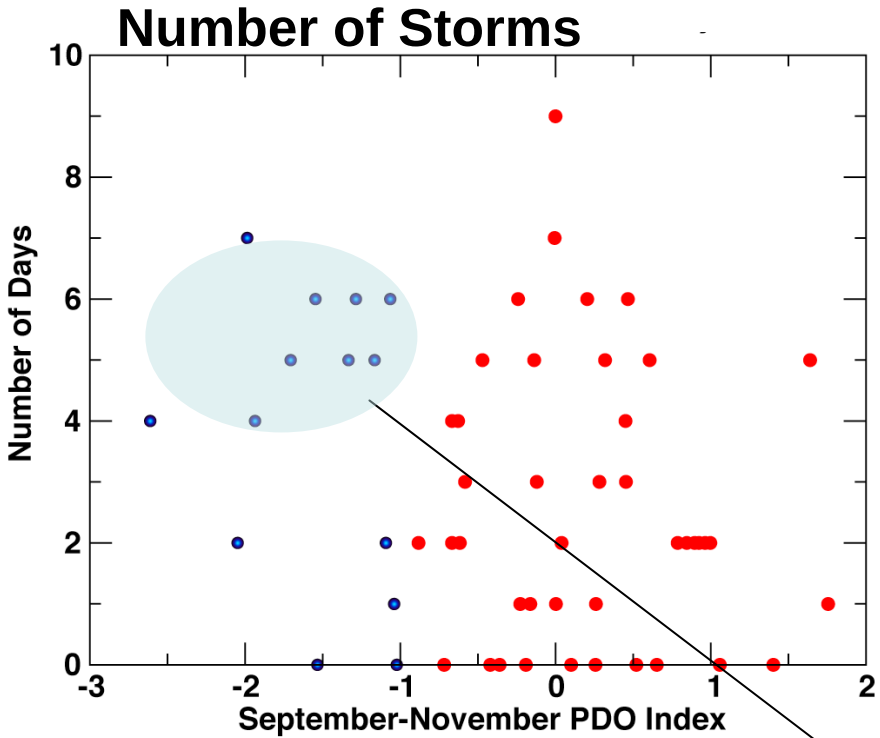


How has the occurrence of such storms depended on Pacific Decadal Oscillation status?

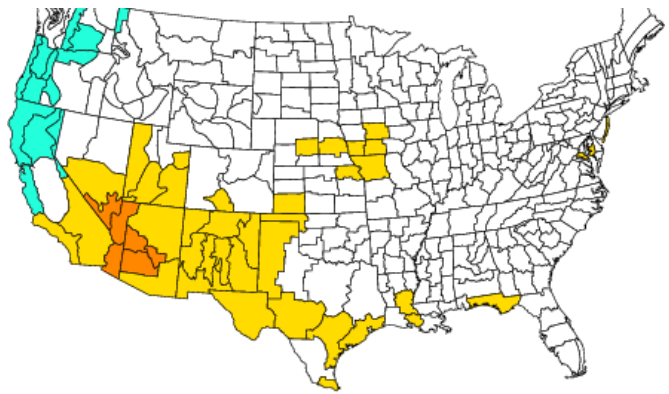


Zeroes: 14%, cool PDO
24%, warmer

Above avg: 64%, cool
42%, warmer



How has the occurrence of such storms depended on Pacific Decadal Oscillation status?



During negative PDO yrs,

	Lots	Few
La Ninaish	7	4
Otherwise	2	1

Prognosis for a Bailout in 2009

ENSO:

La Nina-ish to neutral --> No strong prdxn

PDO:

Strongly cool PDO --> More than normal AR storms in CA

Thus, modest hope for a break